AUTOREM: AUTOLOGIN AND ERP REMINDER

A PROJECT REPORT

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BONAFIDE CERTIFICATE

Certified that this project report **"E-Certificate Generation Using Robotic PROCESS"** is the bonafide work of **"MERVIN J (220701163)"** who carried out the project work for the subject OAI1903-Introduction to Robotic Process Automation under my supervision.

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Internal Examiner **External Examiner**

ABSTRACT

The project "Automated E-Certificate Generation with UiPath RPA" introduces a streamlined and efficient solution for creating personalized certificates by leveraging robotic process automation. By integrating UiPath with Excel and PowerPoint, the system automates the extraction of recipient details, such as names and achievements, from an Excel file and dynamically replaces placeholders within a predesigned PowerPoint template. This ensures uniformity and accuracy across all certificates while saving significant time compared to manual processes. The use of placeholders, like "MAD," allows flexible customization, making the templates reusable for multiple recipients. A looping mechanism enables the bot to process each row in the Excel file, generating unique certificates that are saved with personalized filenames for easy organization and distribution. This approach is highly scalable and ideal for academic ceremonies, corporate recognition programs, and other large-scale events. Key benefits include speed, accuracy, and consistency, with the potential for future enhancements like AI-driven design suggestions to further improve adaptability and efficiency. By automating repetitive tasks, this project demonstrates the transformative potential of RPA in addressing practical challenges across various domains.

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
API	Application Programming Interface
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
OCR	Optical Character Recognition
IDE	Integrated Development Environment
UML	Unified Modeling Language
UI	User Interface
LMS	Learning Management System

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Automation has become a cornerstone of modern efficiency, revolutionizing industries by simplifying repetitive and labor-intensive tasks. The project "Automated E-Certificate Generation with UiPath RPA" provides an innovative solution to address the challenges of manually creating certificates for large-scale events and programs. Traditional methods are not only time-consuming but also prone to errors, especially when handling extensive datasets. This project harnesses the capabilities of UiPath's robotic process automation (RPA) to automate the process seamlessly. By integrating with Excel for data management and PowerPoint for template customization, it eliminates manual intervention, ensuring a smooth and efficient workflow.

The automation process is designed to handle complex operations with ease. Recipient details, such as names and achievements, are extracted row-by-row from an Excel spreadsheet and dynamically replace placeholders in a pre-designed PowerPoint template. This ensures each certificate is personalized while maintaining a consistent and professional design. To further enhance usability, the system saves each certificate with a unique filename, facilitating organization and effortless distribution. The project's ability to handle large volumes of data using a looping mechanism highlights its scalability, making it particularly suited for academic ceremonies, corporate recognition programs, and other large-scale applications. The benefits include not just speed and efficiency but also a significant reduction in human error.

Looking to the future, the project envisions enhancements such as incorporating artificial intelligence to suggest innovative and adaptive certificate designs, thereby expanding its creative potential. This forward-thinking approach demonstrates how automation can evolve to meet growing demands while maintaining a high standard of quality. By combining automation with intelligent features, this project not only addresses current challenges but also sets the stage for more versatile and impactful solutions across various industries.

1.2 OBJECTIVE

The primary objective of the project "Automated E-Certificate Generation with UiPath RPA" is to streamline and automate the creation of personalized certificates for large-scale events and programs. This is achieved by leveraging robotic process automation (RPA) to eliminate the repetitive and error-prone manual process of certificate generation. By integrating Excel for data management and PowerPoint for dynamic template customization, the project ensures efficient handling of recipient information, consistent formatting, and rapid generation of certificates.

1.3 EXISTING SYSTEM

The current method of certificate generation is largely manual, involving significant time and effort, especially for events requiring hundreds or thousands of personalized certificates. Data, such as recipient names and achievements, is typically entered manually into templates, increasing the likelihood of errors and inconsistencies. Additionally, managing and organizing certificates becomes cumbersome, especially when dealing with large volumes. This traditional approach lacks scalability, is prone to human error, and fails to provide the efficiency needed for modern, high-demand scenarios.

1.4 PROPOSED SYSTEM

The proposed system automates the entire certificate generation process using UiPath RPA, ensuring speed, accuracy, and scalability. Recipient data is extracted directly from Excel files and dynamically inserted into PowerPoint templates using placeholders. The system processes each entry in a loop, generating and saving personalized certificates with unique filenames, streamlining file management. This automation eliminates manual effort, reduces errors, and supports large-scale events, while offering flexibility for various use cases like academic ceremonies and corporate recognition programs.

CHAPTER 2

LITERATURE REVIEW

2.1 Survey on E-Certificate Generation in Educational Institutions:

Robotic Process Automation (RPA) is becoming an increasingly valuable tool in educational institutions, particularly in streamlining administrative tasks. One such task is the generation of e-certificates for students, which can be time-consuming and prone to human error when done manually. The integration of RPA in certificate generation simplifies the process by automating data extraction from student records and populating predefined templates. This not only saves time but also reduces the chances of errors. However, challenges remain in integrating this automation seamlessly into existing educational workflows. The literature review of research papers related to RPA in e-certificate generation is listed below:

[1] A study discusses how RPA can transform the issuance of e-certificates by integrating with student information systems. It focuses on automating data extraction from university databases and using RPA tools like UiPath to fill in certificate templates. The research concludes that automation through RPA improves efficiency and ensures consistency in the certificates issued, while also reducing the workload on administrative staff.

[2] Another research paper from IJET explores the use of RPA for generating personalized e-certificates for students at the end of their academic programs. By using data from spreadsheets or databases, the process of inserting names, course details, and other specific information into templates is automated. This study highlights that automation not only improves the speed of certificate generation but also allows institutions to handle large-scale certification needs more effectively.

2.2 Survey on E-Certificate Generation for Corporate Training Programs:

Corporate training programs increasingly rely on automated systems to issue e-certificates to employees upon successful completion of training modules or courses. These systems, powered by RPA and AI, help streamline certificate generation, making the process more efficient and error-free. However, the challenge lies in integrating these systems with existing corporate learning management systems (LMS) and ensuring secure and personalized certificates. The literature review of research papers related to RPA in e-certificate generation for corporate training programs is listed below:

[3] A study discusses how RPA can be leveraged in corporate settings to automate the creation of employee certificates. It examines the integration of RPA with Learning

Management Systems (LMS) to fetch employee data and training completion details automatically. The research concludes that RPA offers significant time savings and enhances consistency, particularly for organizations that issue certificates for a large number of employees.

[4] Another paper explores the potential of AI-driven design tools in corporate training certificate generation. The research evaluates the adaptability of automated systems to customize certificates based on specific courses or achievements. The study highlights that AI can assist in personalizing certificates further by suggesting relevant design elements, thus increasing employee engagement with the certification process.

2.3 Survey on E-Certificate Generation for Event Organizers:

Event organizers often face the challenge of efficiently issuing e-certificates for participants attending workshops, conferences, and seminars. The automation of this process, using RPA tools, allows for quick generation and distribution of certificates, improving both the participant experience and administrative efficiency. However, integration with event registration systems and ensuring proper data accuracy for each attendee can be complex. The literature review of research papers related to RPA in e-certificate generation for event organizers is listed below:

[5] A research paper examines how RPA can streamline the issuance of certificates for event organizers. It discusses the automation of data extraction from event registration forms and the generation of personalized certificates using predefined templates. The research concludes that RPA enhances operational efficiency, particularly when dealing with large events and multiple certificate types, ensuring that each participant receives their certificate without delay.

[6] Another study focuses on the integration of RPA with event management software for e-certificate generation. The paper discusses how RPA can be used to automate the certificate issuance process based on participant attendance and event completion. It emphasizes the scalability of this automation, allowing event organizers to handle a high volume of certificates while maintaining accuracy and consistency.

2.4 Survey on E-Certificate Generation for Government and Public Sector:

In government and public sector organizations, issuing official certificates for various services such as licensing, public service achievements, and training

completion is critical. Automating this process using RPA can significantly improve efficiency, ensure consistency, and reduce the potential for fraud or errors. However, the challenges include ensuring secure data management and complying with public sector standards for certificate issuance. The literature review of research papers related to RPA in e-certificate generation for the public sector is listed below:

[7] A research study discusses how RPA can be implemented in government agencies to automate the issuance of certificates related to public service programs. The paper highlights the integration of RPA with government databases to automatically populate certificates with verified citizen or employee information. The research concludes that RPA reduces the time required for processing and ensures certificates are issued efficiently and accurately.

[8] Another paper explores the security aspects of automated certificate generation in the public sector, particularly in government licensing and regulatory services. It discusses how RPA can ensure that only authorized personnel can issue certificates, reducing the risk of fraudulent activity. The research suggests that automated systems can enhance compliance with government standards and improve the overall public service delivery process.

CHAPTER 3

SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem. The system flow diagram for this project is in Fig. 3.1.

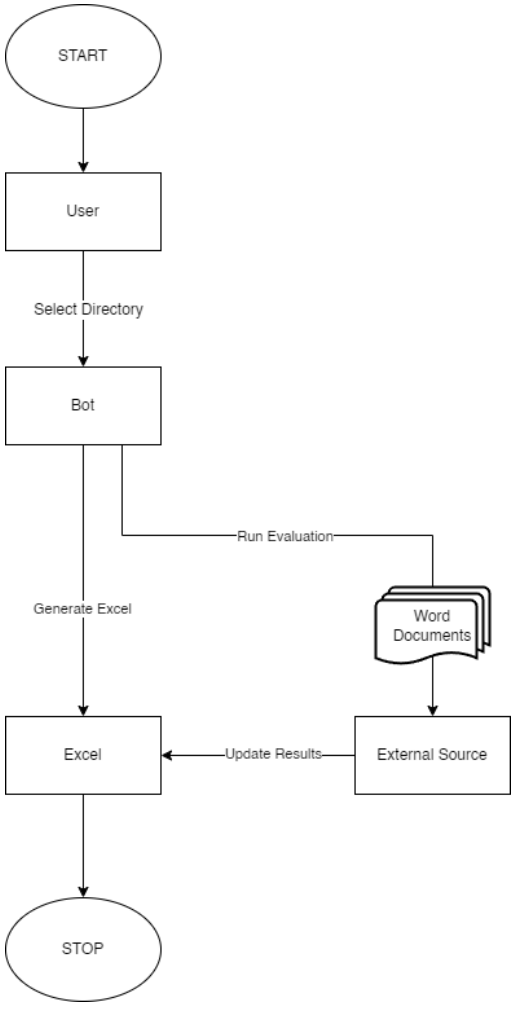


Fig 3.1 System Flow Diagram

3.2 ARCHITECTURE DIAGRAM

An architecture diagram is a graphical representation of a set of concepts, that are part of an architecture, including their principles, elements and components. The architecture diagram for this project is in Fig. 3.2.

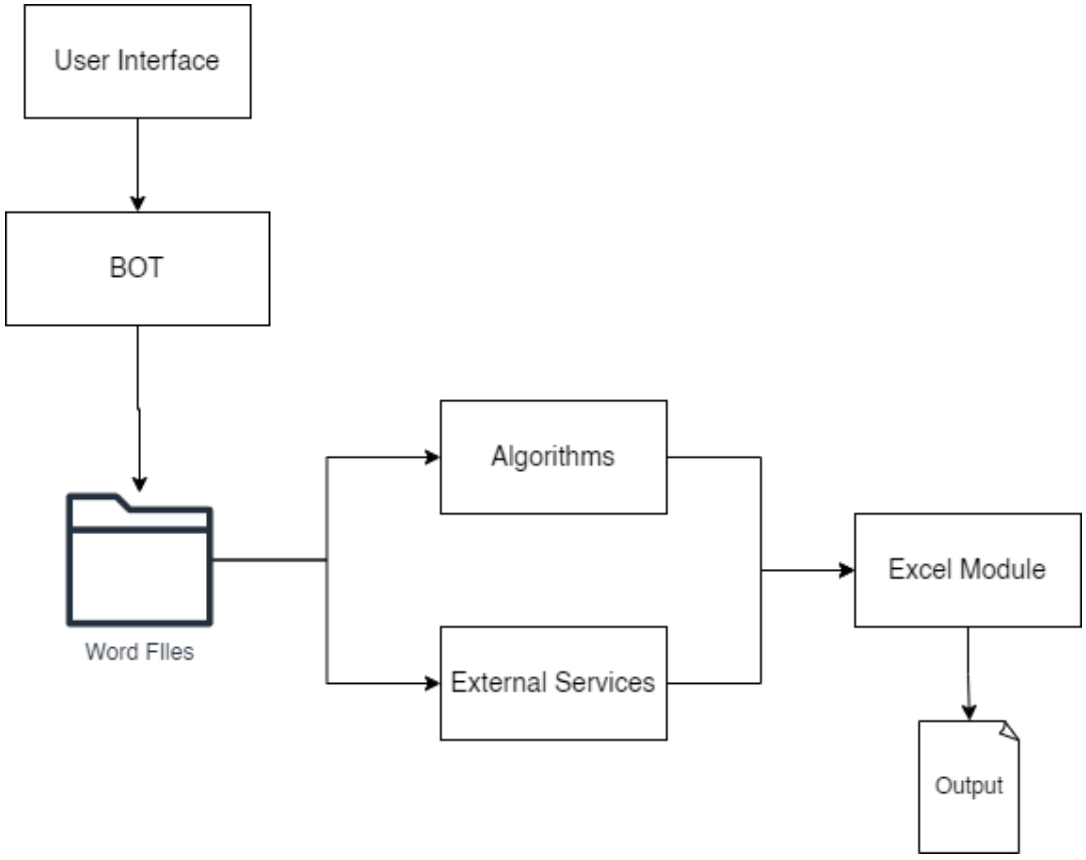


Fig 3.2 Architecture Diagram

3.3 SEQUENCE DIAGRAM

A sequence diagram is a type of interaction diagram because it describe and s how in what order a group of objects works together. The sequence diagram for this project is in Fig. 3.3.

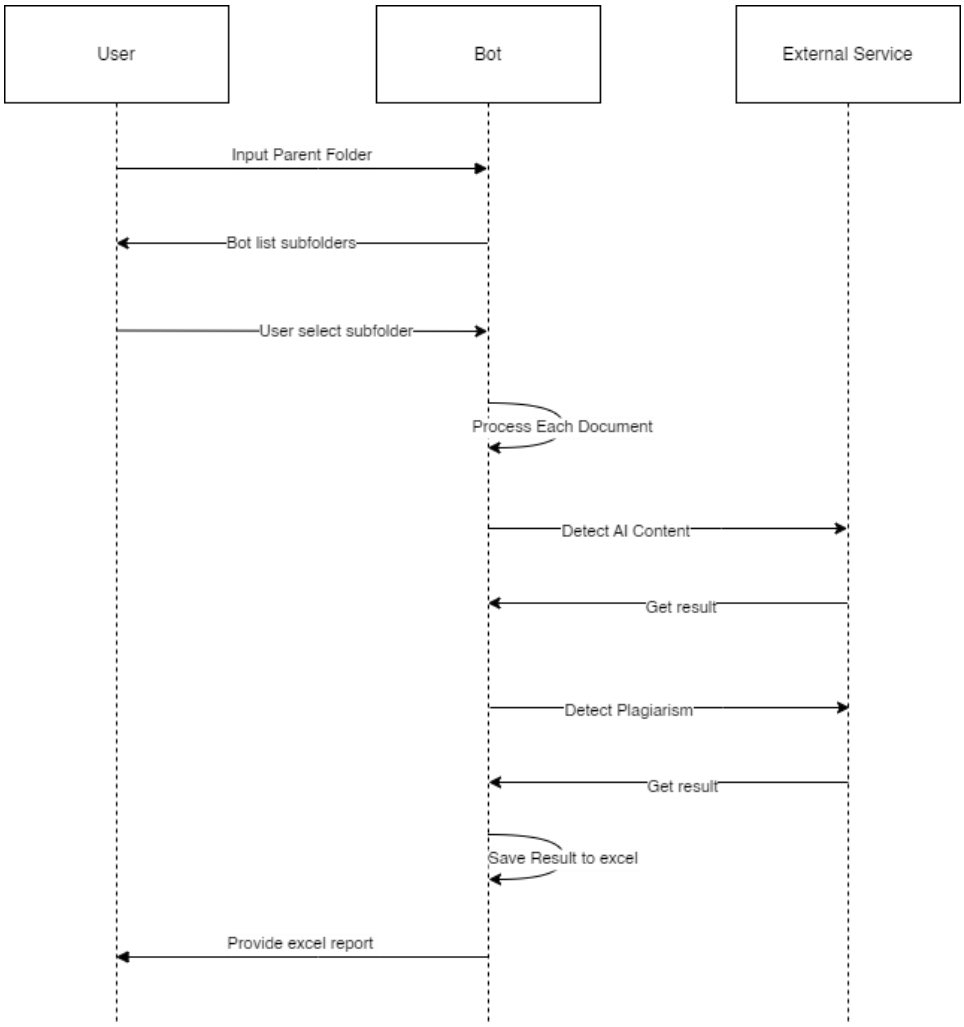


Fig 3.3 Sequence Diagram

CHAPTER 4

PROJECT DESCRIPTION

The project aims to automate the e-certificate generation process using Robotic Process Automation (RPA). It integrates with data sources like Excel or databases to extract recipient details and populate customizable PowerPoint templates. This system improves efficiency, reduces errors, and ensures scalability, making it ideal for educational, corporate, and event applications.

4.1. MODULES:

4.1.1. INPUT HANDLING AND INITIALIZATION:

4.1.1.1. Folder Selection:

• Allow the user to select the location for storing generated certificates.

4.1.1.2. Subfolder Selection:

• List subfolders within the parent folder.

• Allow the user to select the target subfolder.

4.1.1.3 Excel Report Generation:

• Prompt the user to select the data source (e.g., Excel file) containing recipient details.

4.1.2 CONTENT CREATION AND TEMPLATE FILLING:

4.1.2.1 Certificate Template Selection:

- Display a list of available certificate templates for the user to choose from.
- Allow customization of the template based on the type of certificate (e.g., completion, award, training).

4.1.2.2 Data Insertion:

- Dynamically insert recipient details from the selected data source (Excel) into the chosen certificate template.
- Ensure that placeholders (e.g., recipient name, course name, date) are correctly replaced with the extracted data.

4.1.3 RESULT MANAGEMENT:

4.1.3.1 Certificate Storage:

- Systematically store each personalized certificate in the chosen subfolder with unique filenames (e.g., recipient name, certificate type).

4.1.3.2 Real-time Update:

•Display real-time progress of certificate generation,

showing the number of certificates generated and any issues encountered.

4.1.4 COMPLETION

4.1.4 COMPLETION AND REPORTING:

4.1.4.1 Completion Message:

• Conclude the process with a message indicating the successful completion of the e-certificate generation task.

CHAPTER 5

OUTPUT SCREENSHOTS

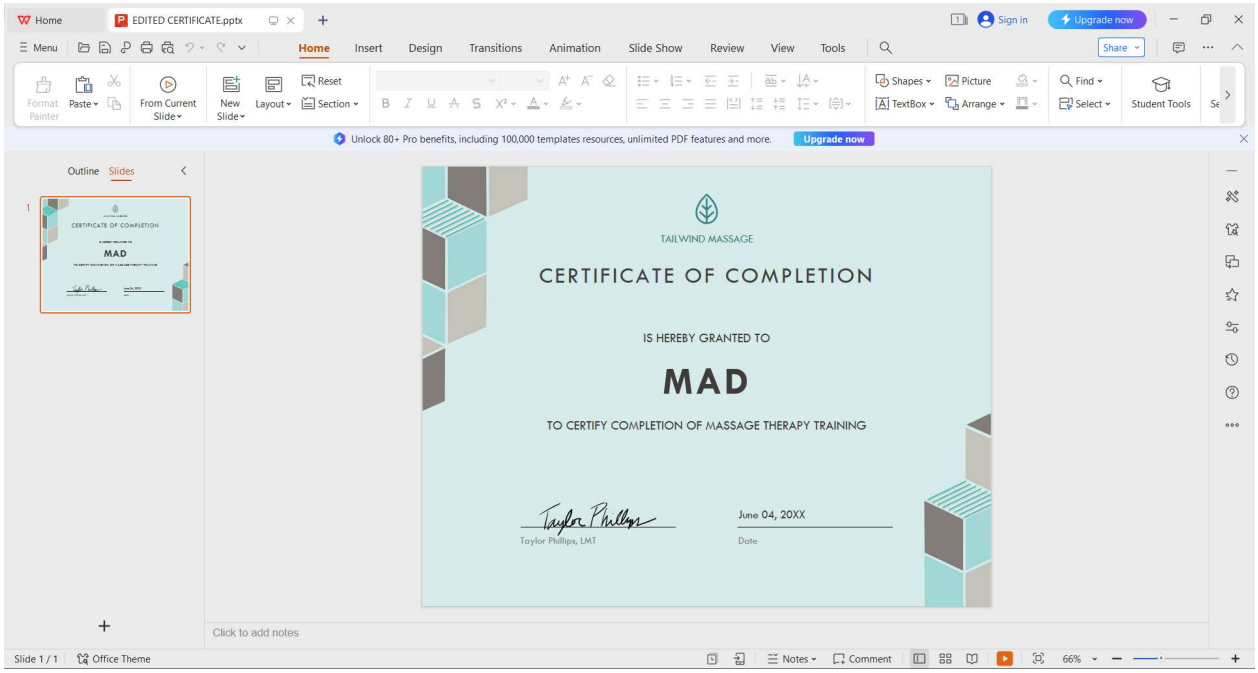


FIG 5.1 - THE CERTIFICATE TEMPLATE

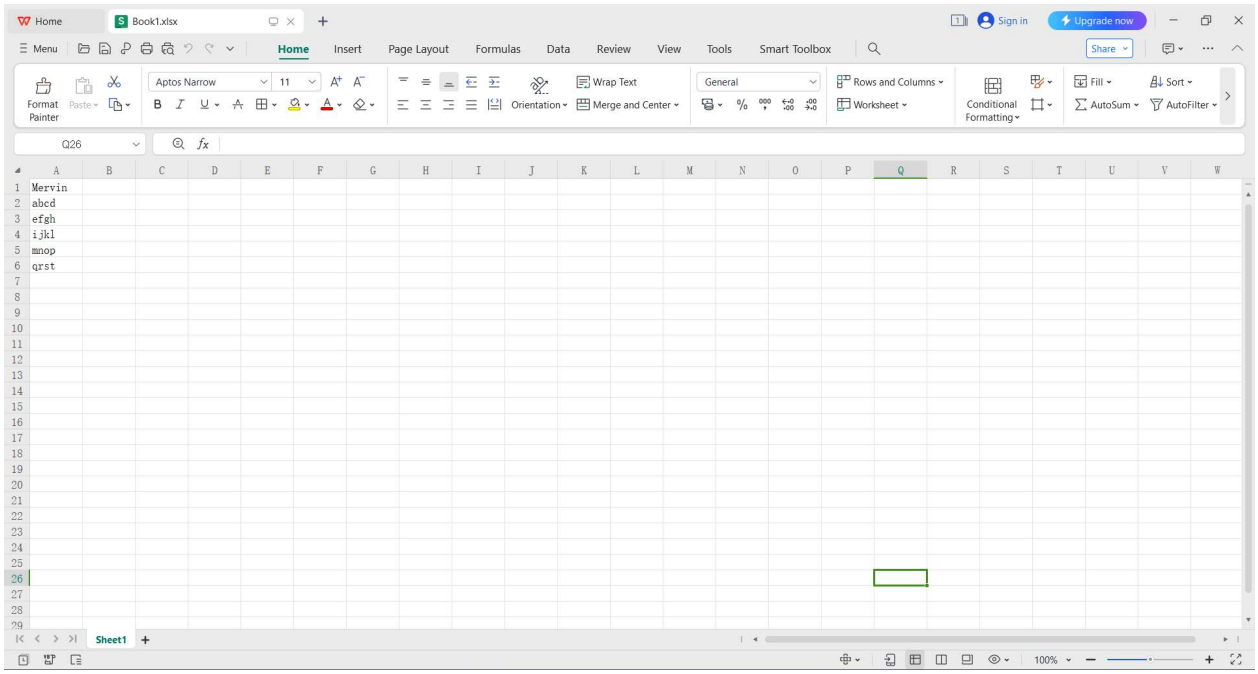


FIG 5.2 - EXCEL WITH NAME LIST

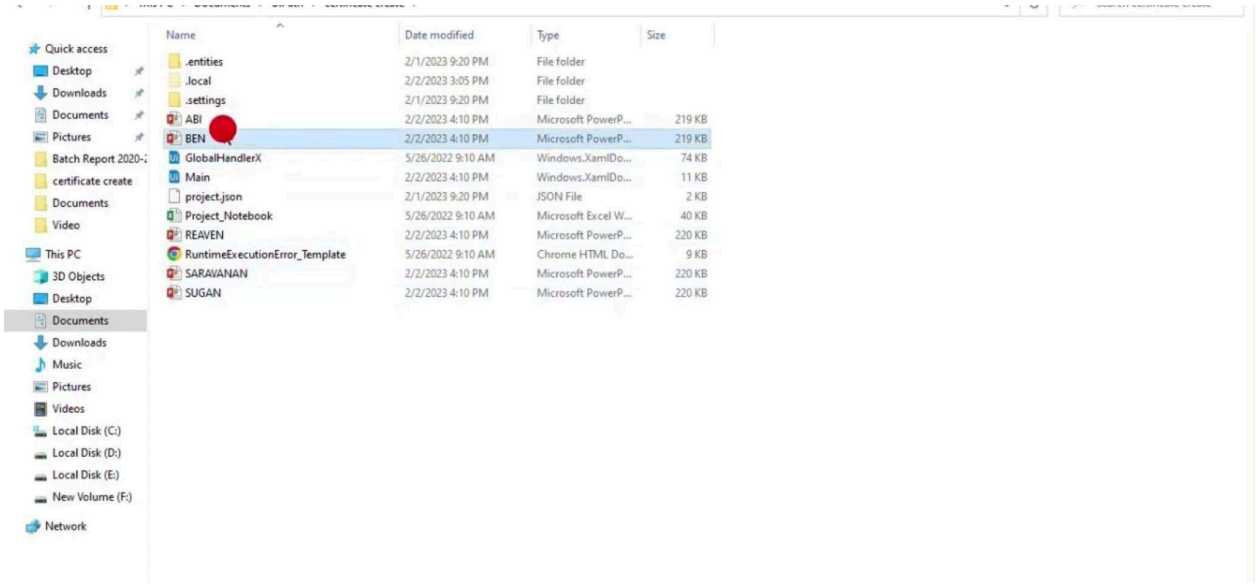


FIG 5.3 - THE PREPARED CERTIFICATES

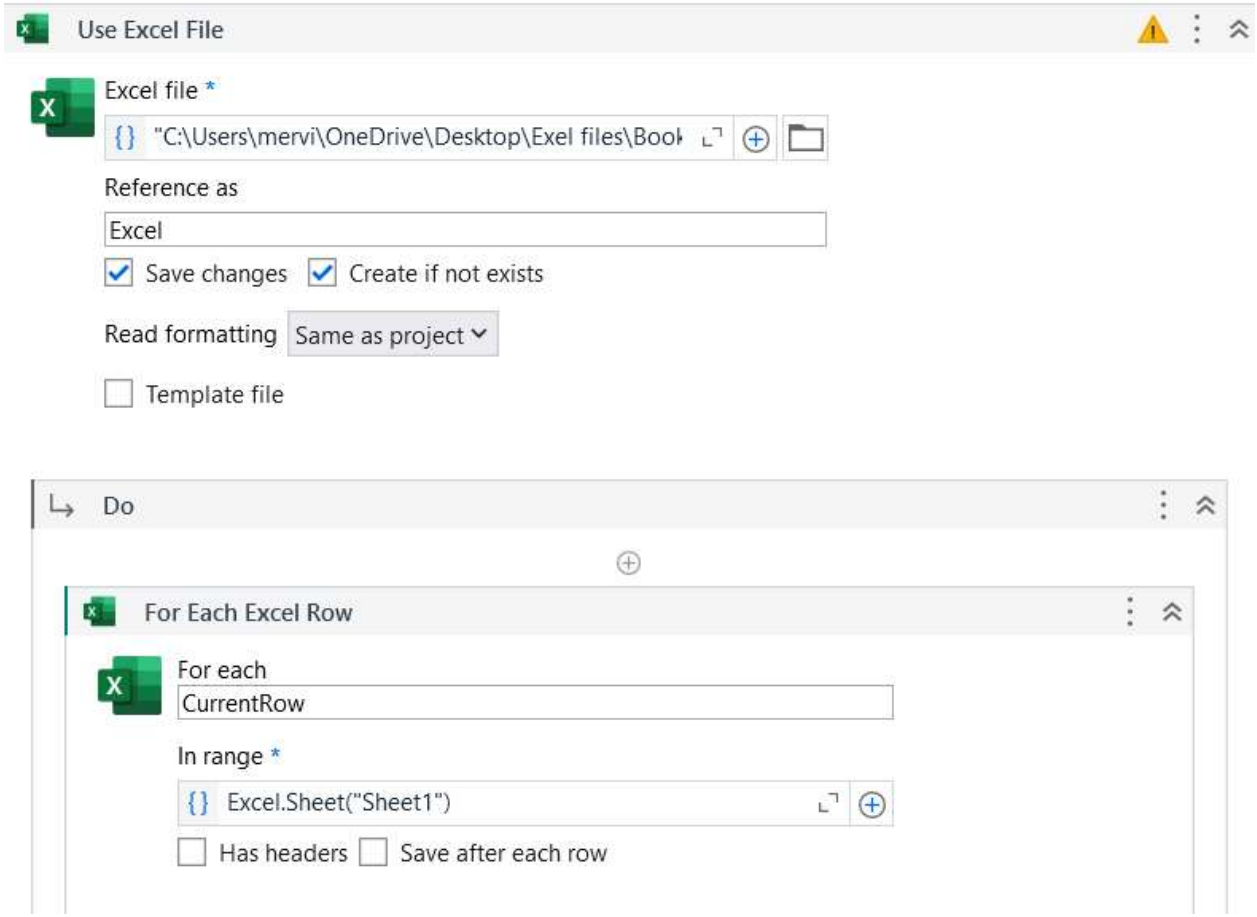
CHAPTER 6

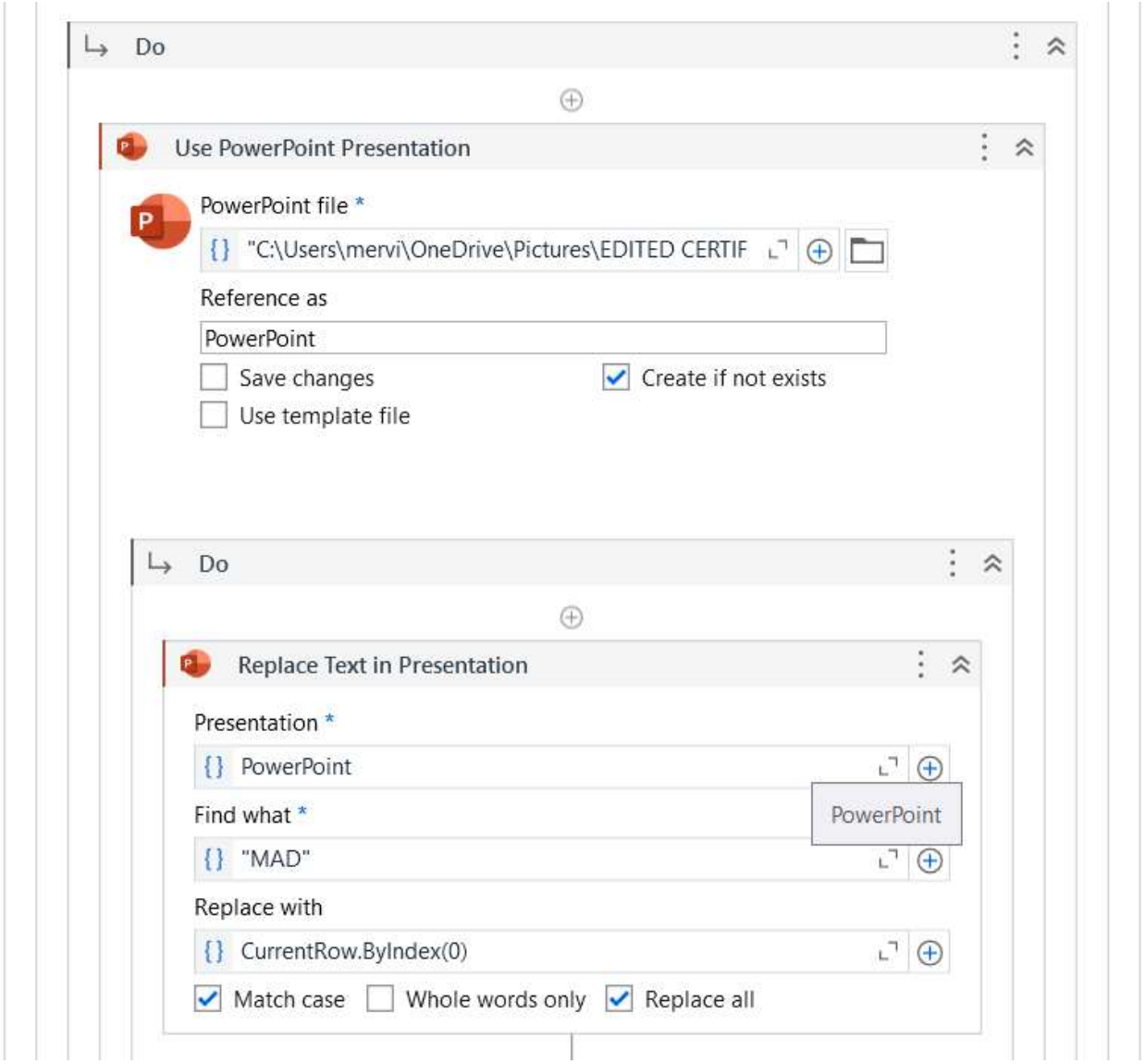
CONCLUSION

The automated e-certificate generation system revolutionizes traditional certificate issuance processes by leveraging Robotic Process Automation (RPA) for efficiency, accuracy, and scalability. By integrating data extraction, template customization, and bulk processing capabilities, the system minimizes manual effort and ensures error-free, professional certificates. Its adaptability to educational institutions, corporate training programs, event organizers, and government sectors demonstrates its versatility and wide applicability. With real-time updates and user-friendly interfaces, the system enhances operational workflows while maintaining a high standard of quality. This project underscores the transformative potential of automation in streamlining administrative tasks, setting a benchmark for future innovations.

APPENDIX

PROCESS WORK FLOW

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PowerPoint
Find what *
PowerPoint
"MAD"
Replace with
CurrentRow.ByIndex(0)
Match case
Whole words only
Replace all

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